

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-36 (Cancelled)

Claim 37 (Currently Amended): A process comprising:

applying directly on a surface of a wood composite material selected from one of hardboard, medium density fiberboard, oriented strand board, particle board or plywood ~~compressible mat~~ a formaldehyde-free, chemically crosslinkable primer coating composition ~~that is not carried on a paper carrier sheet~~, wherein the wood composite material ~~compressible mat~~ comprises at least one of wood chips, flakes, fibers and particles in a resin binder composition, and wherein the crosslinkable primer coating composition comprises:

95 to 99 % by weight, based on weight of dry materials in the composition, of an anionically stabilized aqueous emulsion of a copolymer with a T_g of -10 °C to 50 °C, the polymer comprising in polymerized form a polymerization mixture containing two or more ethylenically unsaturated monomers; 0.2 to 5% by weight of a polyimine compound having a number average molecular weight from 250 to 20,000; and 0.2 to 5% by weight of a volatile base;

wherein the chemically crosslinkable composition forms a chemically crosslinked polymer matrix when, or as, the composition is being applied to the wood composite material ~~compressible mat~~;

applying on the crosslinked polymer matrix a top coat composition comprising a thermoplastic or a thermosetting polymer latex composition to form a top coat layer; and

compressing and heating the crosslinked polymer matrix, the top coat layer, and the wood composite material ~~compressible mat to form a wood composite construction material selected from one of hardboard, medium density fiberboard, oriented strand board, particle board, or plywood.~~

Claims 38-50 (Cancelled).

Claim 51 (Previously presented): The process of claim 37, wherein the chemically crosslinkable composition has a solids content from about 30% to about 80% by weight.

Claim 52 (Previously presented): The process of claim 37, wherein the chemically crosslinkable composition has a solids content from about 20% to about 70% by weight.

Claims 53-66 (Cancelled).

Claim 67 (Previously Presented): The process of claim 37, wherein the primer coating composition has a pH of about 8 to about 11.

Claim 68 (Previously Presented): The process of claim 37, wherein up to up to 5 wt% of the monomers in the polymerization mixture are α - β -ethylenically unsaturated aliphatic carboxylic acid monomers.

Claim 69 (Previously Presented): The process of claim 37, wherein the monomers comprise (meth)acrylate monomers.

Claim 70 (Previously Presented): The process of claim 37, wherein the volatile base comprises ammonium hydroxide.

Claim 71 (Currently Amended): A process comprising:

applying directly on a surface of a wood composite material selected from one of hardboard, medium density fiberboard, oriented strand board, particle board or plywood ~~compressible mat~~ a formaldehyde-free, chemically crosslinkable primer coating composition ~~that is not carried on a paper carrier sheet~~, wherein the wood composite material ~~compressible mat~~ comprises at least one of wood chips, flakes, fibers and particles in a resin binder composition, and wherein the crosslinkable primer coating composition comprises:

95 to 99 % by weight, based on weight of dry materials in the composition, of an anionically stabilized aqueous emulsion of a copolymer with a T_g of -10 °C to 50 °C, the polymer comprising in polymerized form a polymerization mixture containing two or more ethylenically unsaturated monomers; 0.2 to 5% by weight of a polyimine compound having a number average molecular weight from 250 to 20,000; and 0.2 to 5% by weight of a volatile base;

wherein the chemically crosslinkable composition forms a chemically crosslinked polymer matrix when, or as, the composition is being applied to the wood composite material ~~compressible mat~~;

applying on the crosslinked polymer matrix a top coat composition comprising a thermoplastic or a thermosetting polymer latex composition to form a top coat layer;

applying a release coat composition on the top coat composition; and

compressing and heating the crosslinked polymer matrix, the top coat layer, and the wood composite material ~~compressible mat to form a wood composite construction material selected from one of hardboard, medium density fiberboard, oriented strand board, particle board, or plywood.~~

Claim 72 (Currently Amended) The process of claim 37, wherein the compressing and heating step forms a ~~wood composite~~ construction material selected from ~~is~~ a finished door skin or an exterior hardboard siding product.

Claim 73 (Currently Amended) The process of claim 71, wherein the compressing and heating step forms a ~~wood composite~~ construction material selected from is a finished door skin or an exterior hardboard siding product.

Claim 74 (Currently Amended) A process consisting of the following steps, in order:
applying directly on a surface of a wood composite material selected from one of hardboard, medium density fiberboard, oriented strand board, particle board or plywood ~~compressible mat~~ a formaldehyde-free, chemically crosslinkable primer coating composition ~~that is not carried on a paper carrier sheet~~, wherein the wood composite material ~~compressible mat~~ comprises at least one of wood chips, wood flakes, wood fibers and wood particles in a resin binder composition, and wherein the primer coating composition comprises a polymer latex that forms a chemically crosslinked polymer matrix when, or as, the primer coating composition is being applied to the wood composite material ~~compressible mat~~;
applying on the crosslinked polymer matrix a top coat composition comprising a polymer latex composition to form a top coat layer; and
compressing and heating the crosslinked polymer matrix, the top coat layer, and the wood composite material ~~compressible mat to form a wood composite construction material selected from one of hardboard, medium density fiberboard, oriented strand board, particle board, or plywood~~.

Claim 75 (Currently Amended) The process of claim 74, wherein the compressing and heating step forms a ~~wood composite~~ construction material selected from is a finished door skin or an exterior hardboard siding product.

Claim 76 (Currently Amended) A process consisting of the following steps, in order:

placing in a mold a wood composite material selected from one of hardboard, medium density fiberboard, oriented strand board, particle board or plywood ~~compressible mat~~, wherein the wood composite material ~~compressible mat~~ comprises at least one of wood chips, wood flakes, wood fibers and wood particles in a resin binder composition, and wherein the mold is sized to form a door or an exterior hardboard siding product;

applying directly on a surface of the wood composite material ~~compressible mat~~ a formaldehyde-free, chemically crosslinkable primer coating composition ~~that is not carried on a paper carrier sheet~~, wherein the primer coating composition comprises a polymer latex that forms a chemically crosslinked polymer matrix when, or as, the primer composition is being applied to the compressible mat;

applying on the crosslinked polymer matrix a top coat composition comprising a polymer latex composition to form a top coat layer; and

compressing and heating the crosslinked polymer matrix, the top coat layer, and the wood composite material ~~compressible mat~~ in the mold to form a finished door or a finished exterior hardboard siding product.